

STATE OF MISSOURI

PERMIT BOOK



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 052010-011

Project Number: 2010-04-060
Installation ID: PORT-0670

Parent Company: Magruder Limestone Co., Inc.

Parent Company Address: 255 Watson Road, Troy, MO 63379

Installation Name: Magruder Limestone Co., Inc.

Installation Address: Highway 5 and Eddie Ave, Sunrise Beach, MO 65079

Location Information: Camden County, S9, T39N, R17W

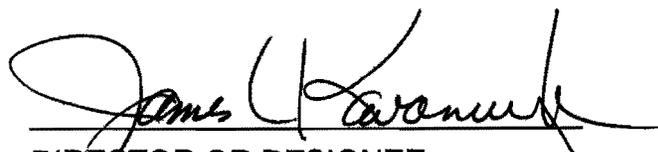
Application for Authority to Construct was made for:

The installation of a new portable rock crushing plant. Best Management Practices will be used to control fugitive emissions from haul roads and vehicular activity areas. This review was conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

EFFECTIVE DATE



DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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GENERAL SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

1. **Equipment Identification Requirement**
Magruder Limestone Co., Inc. shall maintain easily read permanent markings on each component of the plant. These markings shall be the equipment's serial number or a company assigned identification number that uniquely identifies the individual component. These identification numbers must be submitted to the Air Pollution Control Program no later than 15 days after start-up of the portable rock crushing plant.
2. **Relocation of Portable Rock Crushing Plant**
 - A. The portable rock crushing plant, PORT-0670, shall not be operated at any location longer than 24 consecutive months.
 - B. A complete "Portable Source Relocation Request" application must be submitted to the Air Pollution Control Program prior to any relocation of this portable rock crushing plant.
 - 1) If the portable rock crushing plant is moving to a site previously permitted, and if the circumstances at the site have not changed (e.g. the site was only permitted for solitary operation and now another plant is located at the site), then the application must be received by the Air Pollution Control Program at least seven days prior to the relocation.
 - 2) If the portable rock crushing plant is moving to a new site, or if circumstances at the site have changed, then the application must be received by the Air Pollution Control Program at least 21 days prior to the relocation. The application must include written notification of any concurrently operating plants.
3. **Record Keeping Requirement**
Magruder Limestone Co., Inc. shall maintain all records required by this permit for not less than five years and shall make them available to any Missouri Department of Natural Resources' personnel upon request.
4. **Reporting Requirement**
Magruder Limestone Co., Inc. shall report to the Air Pollution Control Program Enforcement Section P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any exceedances of the limitations imposed by this permit.

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SITE SPECIFIC SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

PORT ID Number: PORT-0670

Site ID Number: 029-0050

Site Name: Sunrise Beach Quarry

Site Address: Highway 5 and Eddie Ave, Sunrise Beach, MO 65079

Site County: Camden County S9, T39N, R17W

1. Best Management Practices Requirement
Magruder Limestone Co., Inc. shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing Best Management Practices as defined in Attachment AA.
2. Ambient Air Impact Limitation
 - A. Magruder Limestone Co., Inc. shall not cause an exceedance of the National Ambient Air Quality Standard (NAAQS) for particulate matter less than ten microns in aerodynamic diameter (PM₁₀) of 150.0 µg/m³ 24-hour average in ambient air.
 - B. Magruder Limestone Co., Inc. shall demonstrate compliance with special condition 2.A using Attachment A or B or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form. Magruder Limestone Co., Inc. shall account for the impacts from other sources of PM₁₀ as instructed in Attachment A and B.
3. Annual Emission Limit
 - A. Magruder Limestone Co., Inc. shall emit less than 40.0 tons of NO_x in any 12-month period from the entire installation.
 - B. Magruder Limestone Co., Inc. shall demonstrate compliance with special condition 3.A using Attachment C or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
4. Moisture Content Testing Requirement
 - A. Magruder Limestone Co., Inc. shall verify that the moisture content of the processes rock is greater than or equal to 1.5% weight.
 - B. Testing shall be conducted according to the method prescribed by the American Society for Testing Materials (ASTM) D-2216, C-566 or another method approved by the Director.
 - C. The initial test shall be conducted not later than 45 days after the start of operation. A second test shall be performed the calendar year following the initial test during the months of July or August.

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SITE SPECIFIC SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- D. The test samples shall be taken from rock that has been processed by the plant or from each source of aggregate (e.g. quarry).
- E. The written analytical report shall include the raw data and moisture content of each sample, the test date and the original signature of the individual performing the test. The report shall be filed on-site or at the Magruder Limestone Co., Inc. main office within 30 days of completion of the required test.
- F. If the moisture content of either of the two tests is less than the moisture content in special condition 4.A, another test may be performed within 15 days of the noncompliant test. If the results of that test also exceed the limit, Magruder Limestone Co., Inc. shall either:
 - 1.) Apply for a new permit to account for the revised information, or
 - 2.) Submit a plan for the installation of wet spray devices to the Air Pollution Control Program Compliance Assistance section within 10 days of the second noncompliant test. The wet spray devices shall be installed and operational within 40 days of the second noncompliant test.
- 5. Diesel Engine/Generator Use Restriction
Magruder Limestone Co., Inc. shall only operate the diesel engine/generator to power equipment during production.
- 6. Restriction on the Process Configuration of Primary Emission Points
The primary emission unit sets the maximum hourly design rate of the plant. Magruder Limestone Co., Inc. has designated the grizzly feeder (EP3) as the primary emission point of the portable rock crushing plant. Bypassing the primary emission point for processing is prohibited.
- 7. Minimum Distance to Property Boundary Requirement
The primary emission point, which is the grizzly feeder (EP3), shall be located at least 400 feet from the nearest property boundary.
- 8. Record Keeping Requirement
Magruder Limestone Co., Inc. shall maintain all records required by this permit for five years and make them available to any Missouri Department of Natural Resources personnel upon request.
- 9. Reporting Requirement
Magruder Limestone Co., Inc. shall report to the Air Pollution Control Program Enforcement Section P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any exceedances of the limitations imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (6) REVIEW

Project Number: 2010-04-060
Installation ID Number: PORT-0670
Permit Number:

Magruder Limestone Co., Inc.
Highway 5 and Eddie Avenue
Sunrise Beach, MO 65079

Complete: April 21, 2010

Parent Company:
Magruder Limestone Co., Inc.
255 Watson Road
Troy, MO 63379

Camden County, S9, T39N, R17W

PROJECT DESCRIPTION

Magruder Limestone Co., Inc. has applied for authority to construct a new portable rock crushing plant in Missouri. The facility has a maximum hourly design rate (MHDR) of 300 tons per hour. The primary emission point of the plant is the grizzly feeder and it will be located at least 400 feet from the nearest property boundary, which is Highway 5 north of the plant. A 425 horsepower diesel engine/generator will be used to power equipment during production.

The applicant will use one of the methods described in Attachment AA, "Best Management Practices," to control emissions from haul roads and vehicular activity areas. This installation is located in Camden County, an attainment area for all criteria pollutants. This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

No permits have been issued to the plant from the Air Pollution Control Program. An operating permit is not required because this plant is portable.

TABLES

The table below summarizes the emissions of this project. The potential emissions of the process equipment, which excludes emissions from haul roads and wind erosion, are site specific and should not vary from site to site. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year). The conditioned potential emissions are based on a voluntary limit of 40.0 tons per year of NO_x to avoid screen modeling.

Table 1: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/ SMAL	¹ Potential Emissions of Process Equipment (tpy)	Existing Actual Emissions (tpy)	² Potential Emissions of the Application (tpy)	Conditioned Potential Emissions (tpy)
PM ₁₀	15.0	6.40	N/A	25.53	17.38
SO _x	40.0	3.92	N/A	3.92	2.63
NO _x	40.0	59.66	N/A	59.66	<40.0
VOC	40.0	4.68	N/A	4.68	3.27
CO	100.0	12.85	N/A	12.85	8.62
Total HAPs	25.0	0.05	N/A	0.05	0.04

N/A = Not Applicable

¹Excludes site specific haul road and storage pile emissions

²Includes site specific haul road and storage pile emissions

Table 2: Ambient Air Quality Impact Analysis

Pollutant	¹ NAAQS (µg/m ³)	Averaging Time	² Maximum Modeled Impact (µg/m ³)	Limited Impact (µg/m ³)	Background (µg/m ³)	³ Daily Limit (tons/day)
⁴ PM ₁₀ (same)	150.0	24-hour	137.5	130.0	20.0	6,919
⁵ PM ₁₀ (separate)	150.0	24-hour	137.5	77.27	72.73	4,491

¹National Ambient Air Quality Standards (NAAQS)

²Modeled impact at maximum capacity with controls

³Indirect limit based on compliance with NAAQS.

⁴Solitary operation or operation with other plants that are owned by Magruder Limestone Co., Inc.

⁵Operation with other plants that are not owned by Magruder Limestone Co., Inc.

EMISSIONS CALCULATIONS

Emissions for the project were calculated using emission factors found in the United States Environmental Protection Agency (EPA) document AP-42 *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition (AP-42).

Emissions from the rock-crushing equipment were calculated using emission factors from AP-42 Section 11.19.2, "Crushed Stone Processing and Pulverized Mineral Processing," August 2004. The controlled emission factors were used because the inherent moisture content of the crushed rock is greater than 1.5% weight. Emissions from the diesel engines/generator were calculated using emission factors from AP-42 Section 3.3, "Gasoline and Diesel Industrial Engines," October 1996.

Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.2, "Unpaved Roads," November 2006. A 90% control efficiency is applied to the emission calculations for the use of BMPs. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4, "Aggregate Handling and Storage Piles," November 2006. The moisture content of the aggregate is 1.5% by weight. Emissions from wind erosion of storage piles were calculated using an equation found in the Air Pollution Control Program's Emissions Inventory Questionnaire Form 2.8, "Storage Pile Worksheet."

AMBIENT AIR QUALITY IMPACT ANALYSIS

An ambient air quality impact analysis (AAQIA) was performed to determine the impact of PM₁₀. The Air Pollution Control Program requires an AAQIA of PM₁₀ for all asphalt, concrete and rock-crushing plants regardless of the level of PM₁₀ emissions if a permit is required. The AAQIA was performed using the Air Pollution Control Program's generic nomographs. The maximum concentration that occurs at or beyond the site boundary was compared to the National Ambient Air Quality Standard (NAAQS). During continuous operations, the modeled concentration of PM₁₀ is greater than the applicable NAAQS. Therefore, the plant's production is limited to ensure compliance with the standard.

This plant uses BMPs to control emissions from haul roads and vehicular activity areas, so emissions from these sources were not included in the AAQIA. Instead they were addressed as a background concentration of 20 µg/m³ of PM₁₀ in accordance with the Air Pollution Control Program's BMPs interim policy.

OPERATING SCENARIOS

The plant is permitted to operate with other plants located at the site as long as the NAAQS is not exceeded. The following scenarios explain how Magruder Limestone Co., Inc. shall demonstrate compliance with the NAAQS.

- When plants that are owned by Magruder Limestone Co., Inc., which are referred to as "same owner plants," are located at the site, Magruder Limestone Co., Inc. must calculate the daily impact of each plant and limit the total impact of all plants below the NAAQS.
- When plants that are not owned by Magruder Limestone Co., Inc., which are referred to as "separate owner plants," are located at the site, Magruder Limestone Co., Inc. must account for the impacts of these plants as a background concentration and add it to the total impact of all plants owned by Magruder Limestone Co., Inc. that are operating at the site. This total is limited below the NAAQS. Magruder Limestone Co., Inc. will limit the total impact of all plants they own and operate at the site to 77.3 µg/m³ when any plants they do not own are located at the site. Magruder Limestone Co., Inc. is not permitted to operate with any plant that is not owned by Magruder Limestone Co., Inc. that has a separate owner background greater than 52.7 µg/m³.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are above its de minimis level.

APPLICABLE REQUIREMENTS

Magruder Limestone Co., Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110. The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- No Operating Permit is required for this installation.
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants," applies to the equipment.
- 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines," does not apply to the diesel engine/generator because the diesel engine/generator was manufactured before April 1, 2006 and constructed before July 11, 2005.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) apply to the proposed equipment.
- Subpart ZZZZ, "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines," of the Maximum Achievable Control Technology (MACT) apply to the diesel engine/generator.
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Chia-Wei Young
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated April 15, 2010, received April 21, 2010, designating Magruder Limestone Co., Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Attachment AA: Best Management Practices

Haul roads and vehicular activity areas shall be maintained in accordance with at least one of the following options when the portable plant is operating.

1. Pavement
 - A. The operator shall pave the area with materials such as asphalt, concrete or other materials approved by the Air Pollution Control Program. The pavement will be applied in accordance with industry standards to achieve control of fugitive emissions¹ while the plant is operating.
 - B. Maintenance and repair of the road surface will be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.
 - C. The operator shall periodically wash or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these areas while the plant is operating.

2. Application of Chemical Dust Suppressants
 - A. The operator shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to unpaved areas.
 - B. The quantities of the chemical dust suppressant shall be applied and maintained in accordance with the manufacturer's recommendation (if available) and in sufficient quantities to achieve control of fugitive emissions from these areas while the plant is operating.
 - C. The operator shall record the time, date and the amount of material applied for each application of the chemical dust suppressant agent on the above areas. The operator shall keep these records with the plant for not less than five (5) years and make these records available to Department of Natural Resources personnel upon request.

3. Application of Water-Documented Daily
 - A. The operator shall apply water to unpaved areas. Water shall be applied at a rate of 100 gallons per day per 1,000 square feet of unpaved or untreated surface area while the plant is operating.
 - B. Precipitation may be substituted for watering if the precipitation is greater than one quarter of one inch and is sufficient to control fugitive emissions.
 - C. Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
 - D. The operator shall record the date, volume of water application and total surface area of active haul roads or the amount of precipitation that day. The operators shall also record the rationale for not watering (e.g. freezing conditions or not operating).
 - E. The operator shall keep these records with the plant for not less than five (5) years, and the operator shall make these records available to Department of Natural Resources personnel upon request

¹For purposes of this document, Control of Fugitive Emissions means to control particulate matter that is not collected by a capture system and visible emissions to the extent necessary to prevent violations of the air pollution law or regulation. (Note: control of visible emission is not the only factor to consider in protection of ambient air quality.)

Attachment BB: Emission Calculations
 Magruder Limestone Co., Inc.
 2010-04-060

Description	¹ MHDR	MHDR Units	² PM ₁₀ EF	EF Units	Control Eff. %	Emissions (lb/hr)	³ Modeling Rate (lb/hr)
Drilling	300.0000	Tons	0.000000	Tons	0.00	0.0000	0.0000
Blasting	300.0000	Tons/Day	0.000000	Tons/Day	0.00	0.0000	0.0000
Grizzly	300.0000	Tons	0.000016	Tons	0.00	0.0048	0.0046
Primary Impact Crushing	300.0000	Tons	0.002400	Tons	75.00	0.1800	0.1730
Conveyor	300.0000	Tons	0.001100	Tons	95.80	0.0139	0.0133
Conveyor	300.0000	Tons	0.001100	Tons	95.80	0.0139	0.0133
Conveyor	300.0000	Tons	0.001100	Tons	95.80	0.0139	0.0133
Conveyor	300.0000	Tons	0.001100	Tons	95.80	0.0139	0.0133
Screen	300.0000	Tons	0.008700	Tons	91.50	0.2219	0.2132
Conveyor	60.0000	Tons	0.001100	Tons	95.80	0.0028	0.0027
Conveyor	300.0000	Tons	0.001100	Tons	95.80	0.0139	0.0133
Conveyor	60.0000	Tons	0.001100	Tons	95.80	0.0028	0.0027
Conveyor	60.0000	Tons	0.001100	Tons	95.80	0.0028	0.0027
Conveyor	60.0000	Tons	0.001100	Tons	95.80	0.0028	0.0027
Radial Stacker	100.0000	Tons	0.001100	Tons	95.80	0.0046	0.0044
Radial Stacker	100.0000	Tons	0.001100	Tons	95.80	0.0046	0.0044
Radial Stacker	100.0000	Tons	0.001100	Tons	95.80	0.0046	0.0044
Conveyor	60.0000	Tons	0.001100	Tons	95.80	0.0028	0.0027
Pit Haul Road	0.7576	VMT	2.657581	VMT	90.00	0.2013	0.1935
Plant Haul Road	6.2500	VMT	2.129451	VMT	90.00	1.3309	1.2790
Storage Pile Load In	300.0000	Tons	0.004125	Tons	0.00	1.2376	1.1894
Storage Pile Wind Erosion	2.0000	Acres	0.089166	Acres	0.00	0.1783	0.1714
Storage Pile Vehicular Activity	300.0000	Tons	0.006087	Tons	90.00	0.1826	0.1755
Storage Pile Load Out	300.0000	Tons	0.004125	Tons	0.00	1.2376	1.1894
Diesel Engine (425 hp)	0.0225	Mgal	42.470000	Mgal	0.00	0.9574	0.9201

¹Maximum Hourly Design Rate (MHDR)

²Emission Factor (EF)

³The Modeling Rate is the emission rate scaled to the daily hours of operation at MHDR allow by the permit.